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Gerard Vincent Monaghan

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EXAMINER

BOYER, RANDY

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/535,487	Applicant(s) MONAGHAN ET AL.	
	Examiner RANDY BOYER	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges Applicant's response filed 5 February 2008 containing amendments to the specification and remarks.
2. Claims 1-25 are pending.
3. The previous rejections of claims 1-17 and 19-25 under 35 U.S.C. 102(b) are maintained. Likewise, the previous rejection of claim 18 under 35 U.S.C. 103(a) is maintained. The rejections follow.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-15, 19-21, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Jewell (US 2,717,867)
6. With respect to claim 1, Jewell discloses a process for converting a liquid feed material into a vapor phase product comprising: (a) providing a fluid bed (21) comprising solid particles and a fluidizing medium (supplied via aeration supply lines (22, 23)), wherein the fluidizing medium is moving in a substantially vertical fluidizing direction

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(see Jewell, Fig. 1 and Fig. 2) and wherein the solid particles are at a conversion temperature which is suitable for facilitating the conversion of the liquid feed material to the vapor phase product (see Jewell, column 2, lines 45-51; and column 3, lines 35-41 and 58-63); (b) moving the solid particles in a substantially horizontal solid transport direction from an upstream horizontal position to a downstream horizontal position (see Jewell, Fig. 1 and Fig. 2; and column 5, lines 43-53); (c) introducing the liquid feed material (supplied via process line (17)) to the fluid bed (21) at a feed zone located between the upstream horizontal position and the downstream horizontal position in order to facilitate the conversion of the liquid feed material into the vapor phase product (see Jewell, Fig. 1 and Fig. 2); and (d) collecting the vapor phase product (via product outlet lines (49)).

7. With respect to claim 2, Jewell discloses wherein the solid particles are collected (in passageway (32)).

8. With respect to claim 3, Jewell discloses wherein the step of providing the fluid bed comprises introducing the solid particles at the upstream horizontal position and wherein the step of collecting the solid particles comprises collecting the solid particles at the downstream horizontal position (see Jewell, Fig. 1 and Fig. 2).

9. With respect to claim 4, Jewell discloses a step of regenerating the solid particles for re-use after collecting the solid particles (see Jewell, column 6, lines 68-75; column 7, lines 1-4; and Fig. 1).

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10. With respect to claims 5 and 6, Jewell discloses wherein the step of regenerating the solid particles is comprised of heating the solid particles to the conversion temperature (see Jewell, column 7, lines 5-34; and Example).

11. With respect to claims 7 and 8, Jewell discloses wherein the upstream horizontal position is at a higher elevation than the downstream horizontal position so that the solid particles move in the solid transport direction from the upstream horizontal position to the downstream horizontal position under the influence of gravity (see Jewell, Fig. 1 and Fig. 2).

12. With respect to claim 9, Jewell discloses wherein the step of providing the fluid bed is comprised of introducing the fluidizing medium at a lower vertical position below the solid particles so that the fluidizing direction is substantially upward (see Jewell, Fig. 1 and Fig. 2).

13. With respect to claims 10-14, Jewell discloses wherein the step of introducing the liquid feed material to the fluid bed at the feed zone is comprised of spraying the liquid feed material so that the liquid feed material contacts the solid particles as droplets; wherein the liquid feed is sprayed within the fluid bed so that the droplets penetrate the fluid bed; wherein the liquid feed material is sprayed so that the droplets contact the solid particles from a spraying direction which is substantially perpendicular to the solid transport direction; wherein the spraying direction is a substantially vertical direction; and wherein the spraying direction is substantially opposite to the fluidizing direction (see Jewell, column 3, line 75; column 4, lines 1-47; and Fig. 1 and Fig. 2).

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14. With respect to claim 15, Jewell discloses a step of quenching the vapor phase product after collecting the vapor phase product in order to minimize further conversion of the vapor phase product (see Jewell, column 9, lines 17-29).

15. With respect to claims 19-21, Jewell discloses wherein the liquid feed material is comprised of liquid hydrocarbon; heavy hydrocarbon; or heavy oil or a heavy fraction of a crude oil (see Jewell, column 1, lines 15-30).

16. With respect to claim 25, Jewell discloses a step of collecting a vaporized fraction of the liquid fraction of the liquid feed material at a vapor phase product collection location which is adjacent to the feed zone (in vapor product outlet lines (49)) (see Jewell, Fig. 1 and Fig. 2).

17. Claims 1, 16, 17, and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Harper (US 2,895,906).

18. With respect to claim 1, Harper discloses a process for converting a liquid feed material into a vapor phase product comprising: (a) providing a fluid bed (see Harper, Fig. 1) comprising solid particles and a fluidizing medium (29), wherein the fluidizing medium (29) is moving in a substantially vertical fluidizing direction (see Harper, Fig. 1) and wherein the solid particles are at a conversion temperature which is suitable for facilitating the conversion of the liquid feed material to the vapor phase product (see Harper, column 5, lines 37-56); (b) moving the solid particles in a substantially horizontal solid transport direction from an upstream horizontal position to a downstream horizontal position (see Harper, Fig. 1; and column 2, lines 60-72); (c) introducing the liquid feed material (25) to the fluid bed at a feed zone located between

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the upstream horizontal position and the downstream horizontal position in order to facilitate the conversion of the liquid feed material into the vapor phase product (see Harper, Fig. 1); and (d) collecting the vapor phase product (37, 38, 41).

19. With respect to claims 16 and 17, Harper discloses a step of collecting the fluidizing medium with the vapor phase product at an upper vertical position (in solid-vapor separation means (39, 40)) (see Harper, Fig. 1) above the solid particles; and separating the fluidizing medium and the vapor phase product (see Harper, column 4, lines 40-47).

20. With respect to claim 22, Harper discloses wherein the solid particles are comprised of an amount of catalyst which is suitable for use in converting the liquid feed material into the vapor phase product (see Harper, column 3, lines 39-42; and column 5, lines 37-45).

21. With respect to claim 23, Harper discloses wherein the step of collecting the vapor phase product is comprised of collecting the vapor phase product at a plurality of vapor phase product collection locations (37, 38, 41) spaced horizontally between the upstream horizontal position and the downstream horizontal position (see Harper, Fig. 1).

22. With respect to claim 24, Harper discloses wherein the vapor phase product has a composition and wherein the composition of the vapor phase product varies amongst the vapor phase product collection locations (e.g. wherein the vapor phase product recovered in process line (41) additionally comprises steam) (see Harper, Fig. 1; and column 5, lines 54-73).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

25. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

26. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell (US 2,717,867).

27. With respect to claim 18, Jewell discloses a process for converting a liquid feed material into a vapor phase product comprising: (a) providing a fluid bed (21) comprising solid particles and a fluidizing medium (supplied via aeration supply lines (22, 23)), wherein the fluidizing medium is moving in a substantially vertical fluidizing direction (see Jewell, Fig. 1 and Fig. 2) and wherein the solid particles are at a conversion temperature which is suitable for facilitating the conversion of the liquid feed material to the vapor phase product (see Jewell, column 2, lines 45-51; and column 3, lines 35-41 and 58-63); (b) moving the solid particles in a substantially horizontal solid transport direction from an upstream horizontal position to a downstream horizontal position (see Jewell, Fig. 1 and Fig. 2; and column 5, lines 43-53); (c) introducing the liquid feed material (supplied via process line (17)) to the fluid bed (21) at a feed zone located between the upstream horizontal position and the downstream horizontal position in order to facilitate the conversion of the liquid feed material into the vapor phase product (see Jewell, Fig. 1 and Fig. 2); and (d) collecting the vapor phase product (via product outlet lines (49)).

Jewell does not disclose wherein the solid particles are moved in the solid transport direction at a rate which is significantly larger than a rate of mixing of the solid particles in the solid transport direction.

However, Jewell discloses wherein the residence time of the solid particles in the horizontally elongated drum (19) can be varied by varying the rate at which the solid

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particles are discharged into the drum and by varying the quantity of solid particles in the drum.

Thus, Examiner finds Applicant's claim 18 to be unpatentable in view of the teachings of Jewell, since Jewell explicitly discloses how the solid transport rate of the solid particles can be *varied* so as to achieve any desired residence time of solid particles in the drum (e.g. such that solid particles move at a solid transport rate that is significantly greater than a rate of mixing of the solid particles).

Response to Arguments

28. Applicant's arguments filed 5 February 2008 have been fully considered but they are not persuasive.

29. Examiner understands Applicant's principal arguments to be:

- I. The coke particles of Jewell are not fluidized at the point of contact with the oil.
- II. Jewell provides only limited guidance or direction regarding the desired drum residence time to be achieved.
- III. Harper introduces liquid feed material to a reaction zone (20) of the fluid bed that does not include a fluidizing medium moving in a substantially vertical fluidizing direction.

30. With respect to Applicant's first argument, Examiner notes Jewell's disclosure at column 3, lines 68-70 where he explains "*The spray of oil is directed into the aerated [i.e. "fluidized"] mass of coke being introduced, to effect intimate contact of the hot coke and oil*" (emphases added).

31. With respect to Applicant's second argument, see discussion *supra* at paragraph 27.

32. With respect to Applicant's third argument, Harper clearly discloses wherein the reaction zone (20) includes a fluidizing medium (steam injected via line 32) moving in a substantially vertical fluidizing direction (see Harper, Fig. 1).

Conclusion

33. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB

/Glenn A Caldarola/

Acting SPE of Art Unit 1797